

Express Mail No. EM 093 420 691 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Karatzas *et al.*

Confirmation No.: 6046

Serial No.: 10/501,183

Art Unit: 1646

Filing date (as requested): October 7, 2004

For: METHODS AND COMPOSITIONS FOR  
SPINNING SPIDER SILK PROTEIN

Attorney Docket No: 9529-008-999

**PETITION TO CORRECT FILING DATE UNDER 37 C.F.R. § 1.10(c)**

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

On October 7, 2004, Applicants filed a response to the "Notification of Missing Requirements Under 35 U.S.C. 371" dated August 25, 2004 in connection with the above-identified patent application. On the "Notice of Acceptance of Application Under 35 U.S.C. 371 and 37 C.F.R. 1.495" dated August 2, 2007, the United States Patent and Trademark Office (USPTO) states that the items enclosed with Applicants' response were received on October 7, 2006, which is in turn reflected in the "filing or 371(c) date" indicated in the Filing Receipt mailed August 2, 2007 by the USPTO.

Applicants hereby petition that the date of completion of all 35 U.S.C. § 371 requirements for the above-identified patent application be corrected to **October 7, 2004**.

Pursuant to 37 C.F.R. § 1.10, Applicants' response competing all requirements under § 371 for the above-identified application was filed with an "Express Mail" mailing label and deposited with the United States Postal Service "Express Mail Post Office to Addressee" on October 7, 2004. Enclosed herewith are copies of the following documents that evidence that the items completing all requirements under § 371 and is entitled to a October 7, 2004 filing or 371(c) date:

(i) a United States Post Office Express Mail label bearing the Express Mail No. EV 456 933 018 US on which the date "October 7, 2004" has been stamped by the United States Post Office;

(ii) a return post card for the above-identified application which bears the same Express Mail number EV 456 933 018 US, listing items submitted to the USPTO in connection with the above-identified patent application, and which is stamped by the USPTO with the date October 7, 2004; and

(iii) Applicants' transmittal dated October 7, 2004, bearing the same Express Mail number EV 456 933 018 US which was submitted in response to the Notification of Missing Requirement Under 35 U.S.C. 371, and which completed all requirements under § 371 for the above-identified application.

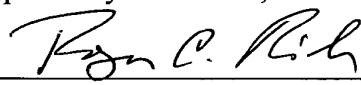
I hereby state that the attached documents are true copies of the original Express Mail mailing label and official notation entered by the United States Postal Service and return postcard with notation entered by the USPTO.

In view of the foregoing, it is submitted that Applicants' response to the "Notification of Missing Requirements Under 35 U.S.C. 371" dated August 25, 2004 in connection with the above-identified patent application was filed by Express Mail on October 7, 2004 and the above-identified patent application is entitled to a filing or 371(c) date of October 7, 2004. Issuance of a corrected Notice of Acceptance of Application Under 35 U.S.C. 371 and 37 CFR 1.495 and corrected Filing Receipt indicating that completion of 371 requirements and filing or 371(c) date, respectively, on October 7, 2004 are respectfully requested.

Since this error is on the part of the USPTO, no additional fee should be charged to applicants. If however should the USPTO determine a fee is necessary, please charge the necessary fee to Jones Day Deposit Account No. 50-3013 (referencing no. 602922-999007).

Respectfully submitted,

Date: August 22, 2007

  
\_\_\_\_\_  
Roger C. Rich (Reg. No.) 54,398  
For: Nikolaos C. George (Reg. No. 39,201)

**JONES DAY**  
222 East 41st Street  
New York, New York 10017  
(212) 326-3939



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Customer Copy  
Label 11-F June 2002



EV 456933018 US



UNITED STATES POSTAL SERVICE®

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ORIGIN (POSTAL USE ONLY)			DELIVERY (POSTAL USE ONLY)		
PO ZIP Code <b>94025</b>	Day of Delivery <input type="checkbox"/> Next <input checked="" type="checkbox"/> Record <input type="checkbox"/>	Flat Rate Envelope <input type="checkbox"/>	Delivery Attempt Mo. Day	Time <input type="checkbox"/> AM <input type="checkbox"/> PM	Employee Signature
Date In Mo. Day Year <b>10 7 04</b>	<input type="checkbox"/> 12 Noon <input checked="" type="checkbox"/> 3 PM	Postage \$	Delivery Attempt Mo. Day	Time <input type="checkbox"/> AM <input type="checkbox"/> PM	Employee Signature
Time In <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM <b>4:30</b>	Military <input type="checkbox"/> 2nd Day <input type="checkbox"/> 3rd Day	Return Receipt Fee	Delivery Date Mo. Day	Time <input type="checkbox"/> AM <input type="checkbox"/> PM	Employee Signature
Weight lbs. <b>10</b> ozs.	Int'l Alpha Country Code	COD Fee Insurance Fee	<input type="checkbox"/> <b>WAVE OF SIGNATURE</b> (Domestic Only) Additional merchandise insurance is void if waiver of signature is requested. I wish delivery to be made without obtaining signature of addressee or addressee's agent (if delivery employee judges that article can be left in secure location) and I authorize that delivery employee's signature constitute valid proof of delivery.		
No Delivery <input type="checkbox"/> Weekend <input type="checkbox"/> Holiday	Acceptance Clerk Initials <b>P2e</b>	Total Postage & Fees \$	<input type="checkbox"/> <b>NO DELIVERY</b> <input type="checkbox"/> Weekend <input type="checkbox"/> Holiday Customer Signature		
CUSTOMER USE ONLY METHOD OF PAYMENT: Express Mail Corporate Acct. No.			Federal Agency Acct. No. or Postal Service Acct. No.		
FROM: (PLEASE PRINT) PHONE: <b>650 739 3939</b> <b>JONES LAY</b> <b>2902 SAND HILL RD STE 240</b> <b>CONCLO PARK CA 94025-7057</b>			TO: (PLEASE PRINT) PHONE: _____ <b>COMMISSIONER OF PATENTS</b> <b>PO BOX 1450</b> <b>ALEXANDRIA VA 22313-1450</b>		



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Express Mail No **EV 456 933 018 US**

First Class Mail ☐

Date Mailed October 7, 2004

Serial No. 10/501,183

Filed July 9, 2004

Inventor Costas N. Karatzas *et al*

For METHODS OF PRODUCING SILK POLYPEPTIDES AND PRODUCTS THEREOF

- ☒ Response Transmittal
- ☒ Declaration for Non-Provisional Patent Application
- ☒ Assignment w/ Cover Sheet
- ☒ Power of Attorney by Assignee
- ☒ Sequence Listing w/ Computer Readable
- ☒ Return copy of Notification of Missing Requirements
- ☒ Fee By Deposit Account 50-3013
- ☒ Return Postcard

File no. 9529-008-999  
CAM 602922 - 999007

Sender: Roger C. Rich

Express Mail No **EV 456 933 018 US**

First Class Mail ☐

Date Mailed October 7, 2004

Serial No. 10/501,183

Filed July 9, 2004

Inventor Costas N. Karatzas *et al*

For METHODS OF PRODUCING SILK POLYPEPTIDES AND PRODUCTS THEREOF

- ☒ Response Transmittal
- ☒ Declaration for Non-Provisional Patent Application
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**DT02 Rec'd PCT/PTO 07 OCT 2004**

File no. 9529-008-999  
CAM 602922 - 999007

Sender: Roger C. Rich



Express Mail No. EV 456 933 018 US

**COPY**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Karatzas *et al.*

Confirmation No. 6046

Serial No. 10/501,183

Art Unit: To be Assigned

Inter'l Filing Date: January 13, 2003

Examiner: To be Assigned

Inter'l App. No. PCT/IB03/00346

Attorney Docket No. 9529-008-999

For: METHODS OF PRODUCING SILK POLYPEPTIDES  
AND PRODUCTS THEREOF

**TRANSMITTAL**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

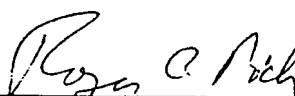
In response to the Notification of Missing Requirements Under 35 U.S.C. 371,  
applicant hereby submits the following:

- 1) A fully executed Declaration for Non-Provisional Patent Application;
- 2) A copy of the executed Assignment and Recordation Form Cover Sheet (an additional copy is being concurrently submitted to the Assignment Recordation Service of the United States Patent and Trademark Office);
- 3) A fully executed Power of Attorney by Assignee;
- 4) Sequence Listing on paper and computer readable form; and
- 5) Copy of Notification of Missing Requirements Under 35 U.S.C. 371.

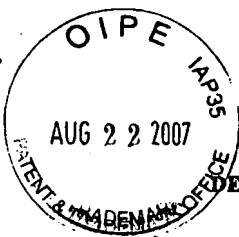
No fees are believed due in connection with this transmittal. However, the  
Commissioner is authorized to charge all required fees or credit any overpayment, to Jones  
Day Deposit Account No. 50-3013 (order no. 9529-008-999).

Respectfully submitted,

Date: October 7, 2004

  
Roger C. Rich (Reg. No.) 54,398  
For: Nikolaos C. George (Reg. No. 39,201)  
**JONES DAY**  
222 East 41<sup>st</sup> Street  
New York, New York 10017-6702  
(212) 326-3939

CAJD: 505734.1

**COPY****DECLARATION FOR NON-PROVISIONAL PATENT APPLICATION\***

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below at 201 et seq. beneath my name.

I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled  
**METHODS OF PRODUCING SILK POLYPEPTIDES AND PRODUCTS THEREOF**

and for which a patent application:

- ☐ is attached hereto and includes amendment(s) filed on (if applicable)  
was filed in the United States on as Application No. To be assigned (for declaration not accompanying application)
- ☐ with amendment(s) filed on (if applicable)
- ☒ was filed as PCT international Application No. PCT/IB03/00346 on January 13, 2003.

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment referred to above

I acknowledge the duty to disclose information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED PRIOR TO THE FILING DATE OF THE APPLICATION				
APPLICATION NUMBER	COUNTRY	DATE OF FILING (day, month, year)	PRIORITY CLAIMED	
			YES <input type="checkbox"/>	NO <input type="checkbox"/>
			YES <input type="checkbox"/>	NO <input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

PROVISIONAL APPLICATION NUMBER	FILING DATE
60/347,509	January 11, 2002

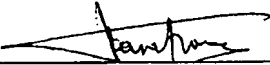

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

NON-PROVISIONAL APPLICATION SERIAL NO.	FILING DATE	STATUS		
		PATENTED	PENDING	ABANDONED

\* for use only when the application is assigned to a company, partnership or other organization.

# COPY

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

2 0 1	FULL NAME OF INVENTOR	LAST NAME Karatzas	FIRST NAME Costas	MIDDLE NAME N.	
	RESIDENCE & CITIZENSHIP	CITY Beaconsfield	STATE OR FOREIGN COUNTRY Canada	COUNTRY OF CITIZENSHIP Greece	
	POST OFFICE ADDRESS	STREET 251 Sherwood Road	CITY Beaconsfield	STATE OR COUNTRY Quebec	ZIP CODE H9W 2H4
	SIGNATURE OF INVENTOR 201 			DATE September 21, 2004	
2 0 2	FULL NAME OF INVENTOR	LAST NAME Turcotte	FIRST NAME Carl	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY Montreal	STATE OR FOREIGN COUNTRY Canada	COUNTRY OF CITIZENSHIP Canada	
	POST OFFICE ADDRESS	STREET 6406 Iberville	CITY Montreal	STATE OR COUNTRY Quebec	ZIP CODE H2G 2C4
	SIGNATURE OF INVENTOR 202 			DATE September 21, 2004	

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Express Mail No. EV 456 933 018 US

AUG 22 2007

RECORDATION FORM COVER SHEET  
PATENTS ONLY

Attorney Docket Number 9529-008-999

Mail Stop Assignment Recordation Services  
Director of the United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Please record the attached original documents or copy thereof.

## 1. Name of conveying party(ies):

Costas N. Karatzas and Carl Turcotte

Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No

## 3. Nature of conveyance:

☒ Assignment

Merger

Security Agreement

Change of Name

Other

Execution Date: September 20, 2004

## 2. Name and address of receiving party(ies):

Name: Nexia Biotechnologies, Inc.Address: 1000 Avenue St. Charles, Block B  
Vaudreuil-Dorion, Quebec J7V 8P5

Country (if other than USA):

Canada

Zip Code:

Additional name(s) & address(es) attached? ☐ Yes ☐ No

## 4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s) 10/501,183

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

JONES DAY  
222 East 41st Street  
New York, New York 10017

## 6. Number of applications and patents involved:

17. Total fee (37 CFR 3.41):.....\$ 40.00  
Please charge to the deposit account listed in Section 8.

## 8. Deposit account number:

50-3013

DO NOT USE THIS SPACE

## 9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Roger C. Rich

For: Nikolaos C. George (Reg. No. 39,201) 54,398

Name of Person Signing

Reg. No.

Signature

October 7, 2004

Date

Total number of pages including cover sheet:

3

Mail documents to be recorded with required cover sheet information to:

Mail Stop Assignment Recordation Services  
Director of the United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
Or fax documents to Fax No.: 703-306-5995



## ASSIGNMENT

WHEREAS, WE, Costas N. Karatzas and Carl Turcotte, ASSIGNORS, citizens of Greece and Canada, respectively, residing at Quebec, Canada, are the inventors of the invention in METHODS OF PRODUCING SILK POLYPEPTIDES AND PRODUCTS THEREOF for which we have executed an application for a Patent of the United States

- ☐ which is executed on ☐ even date herewith or ☐
- ☒ which is identified by Jones Day docket no. 9529-008-999
- ☒ which was filed on July 9, 2004, and assigned U.S. Serial No. 10/501,183
- ☐ We hereby authorize and request our attorney, , of Jones Day, , to insert here in parentheses (Application number, \_\_\_\_\_ filed \_\_\_\_\_) the filing date and application number of said application when known.

and WHEREAS, Nexia Biotechnologies Inc., ASSIGNEE is desirous of obtaining our entire right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said ASSIGNORS, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said ASSIGNEE, its successors, legal representatives and assigns, our entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

AND WE HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant and agree that we have full right to convey the entire interest herein assigned, and that we have not executed, and will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to the said ASSIGNEE, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

IN TESTIMONY WHEREOF, We hereunto set our hands and seals the day and year set opposite our respective signatures.

Date September 20<sup>th</sup>, 2004 Costas N. Karatzas L.S.

Date September 20<sup>th</sup>, 2004 Carl Turcotte L.S.

Province of Quebec )  
 ) SS:  
Country of Canada )

On Sept 20, 2004, before me, DANA C. RATH, Notary Public, personally appeared Costas N. Karatzas, personally known to me on the basis of satisfactory evidence to be the person(s) whose name(s) is subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Dana C. Rath

**COPY**

Province of Quebec )  
 ) SS.:  
Country of Canada )

On Sept 20, 2004, before me, DANA C. RATH Notary Public, personally appeared Carl Turcotte, personally known to me on the basis of satisfactory evidence to be the person(s) whose name(s) is subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Dana C. Rath



**COPY**

**POWER OF ATTORNEY**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Nexia Biotechnologies Inc. Confirmation No. 6046  
Serial No.: 10/501,183 Art Unit: Not yet Assigned  
Filed: July 9, 2004 Examiner: Unknown  
Int'l Filing Date: January 13, 2003 Attorney Docket No. 9529-008-999  
For: METHODS OF PRODUCING SILK POLYPEPTIDES AND  
PRODUCTS THEREOF

**POWER OF ATTORNEY BY ASSIGNEE  
AND EXCLUSION OF INVENTOR(S) UNDER 37 C.F.R. 3.71  
WITH STATEMENT UNDER 37 C.F.R. 3.73(b)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The undersigned assignee of the entire interest in the above-identified subject application hereby appoints Practitioners at Customer Number 20583 all of Jones Day, whose address is 222 East 41st Street, New York, New York 10017, as its attorneys to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith, said appointment to be to the exclusion of the inventors and their attorney(s) in accordance with the provisions of 37 C.F.R. 3.71.

Please direct all correspondence for this application to Customer no. 20583.

**Statement Under 37 C.F.R. 3.73(b)**

Nexia Biotechnologies Inc. states that it is:

- ☒ the assignee of the entire right, title, and interest; or  
☐ an assignee of less than the entire right, title and interest.  
The extent (by, percentage) of its ownership interest is %

in the patent application/patent identified above by virtue of either:

- ☒ An assignment from the inventor(s) of the patent application/patent identified above.  
A copy is attached.

OR

- ☐ A chain of title from the inventor(s), of the patent application/patent identified above,  
to the current assignee as shown below:

1. From: To:  
The document was recorded in the United States Patent and Trademark Office on  
at Reel , Frame , or for which a copy thereof is attached.

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2. From: To:

The document was recorded in the United States Patent and Trademark Office on  
at Reel , Frame , or for which a copy thereof is attached.

3. From: To:

The document was recorded in the United States Patent and Trademark Office on  
at Reel , Frame , or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ Copies of assignments or other documents in the chain of title are attached.  
[Note: A separate copy (i.e., the original assignment document or a true copy of the original document) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

**ASSIGNEE: Nexia Biotechnologies Inc.**

Date:

Sept 20/04

Signature:

Nexia Biotechnologies Inc.

Dana L. Rath

Typed Name:

Dana L. Rath

Position/Title:

Vice President, Finance & Administration



**COPY**

Express Mail No. EV 456 933 018 US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Karatzas *et al.*

Confirmation No. 6046

Serial No. 10/501,183

Art Unit: To be Assigned

Inter'l Filing Date: January 13, 2003

Examiner: To be Assigned

Inter'l App. No. PCT/IB03/00346

Attorney Docket No. 9529-008-999

For: METHODS OF PRODUCING SILK POLYPEPTIDES  
AND PRODUCTS THEREOF

**TRANSMITTAL OF SEQUENCE LISTING**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

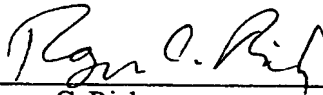
In accordance with 37 C.F.R. §§ 1.821(c) and (e), Applicants submit herewith a Sequence Listing in paper and computer readable form.

I hereby state that the content of the paper and computer readable copies of the Sequence Listing, submitted in accordance with 37 C.F.R. §§ 1.821(c) and (e), respectively, are the same.

No fees are believed due in connection with this transmittal. However, the Commissioner is authorized to charge all required fees under 37 C.F.R. § 1.17 and all required extension of time fees, or credit any overpayment, to Jones Day Deposit Account No. 50-3013 (order no. 9529-008-999).

Respectfully submitted,

Date: October 7, 2004

  
\_\_\_\_\_  
Roger C. Rich (Reg. No.) 54,398  
For: Nikolaos C. George (Reg. No. 39,201)  
**JONES DAY**  
222 East 41<sup>st</sup> Street  
New York, New York 10017-6702  
(212) 326-3939



**COPY**

SEQUENCE LISTING

<110> Karatzas, Costas  
Turcotte, Carl

<120> METHODS OF PRODUCING SILK POLYPEPTIDES AND PRODUCTS THEREOF

<130> 9529-008-999

<140> 10/501,183

<141> 2003-01-13

<150> US 60/347,509

<151> 2002-01-11

<160> 48

<170> PatentIn version 3.2

<210> 1

<211> 646

<212> PRT

<213> Artificial sequence

<220>

<223> MaSpI polypeptide

<400> 1

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20 25 30

Gly Ala Gly Ala Ala Ala Ala Ala Ala Gly Gly Ala Gly Gln Gly Gly  
35 40 45

Tyr Gly Gly Leu Gly Ser Gln Gly Ala Gly Arg Gly Gly Leu Gly Gly  
50 55 60

Gln Gly Ala Gly Ala Ala Ala Ala Ala Ala Ala Gly Gly Val Gly Gln  
65 70 75 80

Gly Gly Leu Gly Gly Gln Gly Ala Gly Gln Gly Ala Gly Ala Ala Ala  
85 90 95

Ala Ala Ala Gly Gly Ala Gly Gln Gly Gly Tyr Gly Gly Leu Gly Ser  
100 105 110

Gln Gly Ala Gly Arg Gly Gly Ser Gly Gly Gln Gly Ala Gly Ala Ala  
115 120 125

COPY

Ala Ala Ala Ala Gly Gly Ala Gly Gln Gly Gly Tyr Gly Gly Leu Gly  
130 135 140

Ser Gln Gly Ala Gly Arg Gly Gly Leu Gly Gly Gln Gly Ala Gly Ala  
145 150 155 160

Ala Ala Ala Ala Ala Ala Gly Gly Ala Gly Gln Gly Gly Tyr Gly Gly  
165 170 175

Leu Gly Gly Gln Gly Ala Gly Gln Gly Gly Tyr Gly Gly Leu Gly Ser  
180 185 190

Gln Gly Ala Gly Arg Gly Gly Leu Gly Gly Gln Gly Ala Gly Ala Ala  
195 200 205

Ala Ala Ala Ala Ala Gly Gly Ala Gly Gln Gly Gly Leu Gly Gly Gln  
210 215 220

Gly Ala Gly Gln Gly Ala Gly Ala Ala Ala Ala Ala Gly Gly Ala  
225 230 235 240

Gly Gln Gly Gly Tyr Gly Gly Leu Gly Ser Gln Gly Ala Gly Arg Gly  
245 250 255

Gly Gln Gly Ala Gly Ala Ala Ala Ala Ala Val Gly Ala Gly Gln  
260 265 270

Gly Gly Tyr Gly Gly Gln Gly Ala Gly Gln Gly Gly Tyr Gly Gly Leu  
275 280 285

Gly Ser Gln Gly Ala Gly Arg Gly Gly Leu Gly Gly Gln Gly Ala Gly  
290 295 300

Ala Ala Ala Ala Ala Ala Ala Gly Gly Ala Gly Gln Gly Gly Leu Gly  
305 310 315 320

Gly Gln Gly Ala Gly Gln Gly Ala Gly Ala Ala Ala Ala Ala Gly  
325 330 335

Gly Ala Gly Gln Gly Gly Tyr Gly Gly Leu Gly Asn Gln Gly Ala Gly  
340 345 350

Arg Gly Gly Gln Gly Ala Ala Ala Ala Ala Gly Gly Ala Gly Gln  
355 360 365

Gly Gly Tyr Gly Gly Leu Gly Ser Gln Gly Ala Gly Arg Gly Gly Leu

**COPY**

370

375

380

Gly Gly Gln Gly Ala Gly Ala Ala Ala Ala Ala Gly Gly Ala Gly  
385 390 395 400

Gln Gly Gly Tyr Gly Gly Leu Gly Gly Gln Gly Ala Gly Gln Gly Gly  
405 410 415

Tyr Gly Gly Leu Gly Ser Gln Gly Ser Gly Arg Gly Gly Leu Gly Gly  
420 425 430

Gln Gly Ala Gly Ala Ala Ala Ala Ala Gly Gly Ala Gly Gln Gly  
435 440 445

Gly Leu Gly Gly Gln Gly Ala Gly Gln Gly Ala Gly Ala Ala Ala Ala  
450 455 460

Ala Ala Gly Gly Val Arg Gln Gly Gly Tyr Gly Gly Leu Gly Ser Gln  
465 470 475 480

Gly Ala Gly Arg Gly Gly Gln Gly Ala Gly Ala Ala Ala Ala Ala Ala  
485 490 495

Gly Gly Ala Gly Gln Gly Gly Tyr Gly Gly Leu Gly Gly Gln Gly Val  
500 505 510

Gly Arg Gly Gly Leu Gly Gly Gln Gly Ala Gly Ala Ala Ala Ala Gly  
515 520 525

Gly Ala Gly Gln Gly Gly Tyr Gly Gly Val Gly Ser Gly Ala Ser Ala  
530 535 540

Ala Ser Ala Ala Ala Ser Arg Leu Ser Ser Pro Gln Ala Ser Ser Arg  
545 550 555 560

Val Ser Ser Ala Val Ser Asn Leu Val Ala Ser Gly Pro Thr Asn Ser  
565 570 575

Ala Ala Leu Ser Ser Thr Ile Ser Asn Val Val Ser Gln Ile Gly Ala  
580 585 590

Ser Asn Pro Gly Leu Ser Gly Cys Asp Cys Leu Ile Gln Ala Leu Leu  
595 600 605

Glu Val Val Ser Ala Leu Ile Gln Ile Leu Gly Ser Ser Ser Ile Gly  
610 615 620



**COPY**

Gln Cys Asn Tyr Gly Ser Ala Gly Gln Ala Thr Gln Ile Val Gly Gln  
625 630 635 640

Ser Val Tyr Gln Ala Leu  
645

<210> 2  
<211> 627  
<212> PRT  
<213> Artificial sequence

<220>  
<223> MaSpII polypeptide

<400> 2

Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro  
1 5 10 15

Gly Gln Gln Gly Pro Ser Gly Pro Gly Ser Ala Ala Ala Ala Ala Ala  
20 25 30

Ala Ala Ala Ala Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro  
35 40 45

Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly  
50 55 60

Gln Gln Gly Pro Ser Gly Pro Gly Ser Ala Ala Ala Ala Ala Ala Gly  
65 70 75 80

Ser Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro  
85 90 95

Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Ser Gly Pro Gly Ser Ala  
100 105 110

Ala Ala Ala Ser Ala Ala Ala Ser Ala Glu Ser Gly Gln Gln Gly Pro  
115 120 125

Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly  
130 135 140

Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Ser Gly  
145 150 155 160

Pro Gly Ser Ala Ala Ala Ala Ala Ala Ala Ser Gly Pro Gly Gln

**COPY**

165

170

175

Gln Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr  
180 185 190

Gly Pro Gly Gln Gln Gly Pro Ser Gly Pro Gly Ser Ala Ala Ala Ala  
195 200 205

Ala Ala Ala Ala Ser Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly  
210 215 220

Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Leu  
225 230 235 240

Ser Gly Pro Gly Ser Ala Ala Ala Ala Ala Ala Ala Gly Pro Gly Gln  
245 250 255

Gln Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Ser Gly Pro  
260 265 270

Gly Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala Gly Pro Gly Gly Tyr  
275 280 285

Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly  
290 295 300

Pro Ser Gly Ala Gly Ser Ala Ala Ala Ala Ala Ala Ala Gly Pro Gly  
305 310 315 320

Gln Gln Gly Leu Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly  
325 330 335

Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Gly Pro Gly Ser Ala  
340 345 350

Ser Ala Ala Ala Ala Ala Ala Gly Pro Gly Gln Gln Gly Pro Gly Gly  
355 360 365

Tyr Gly Pro Gly Gln Gln Gly Pro Ser Gly Pro Gly Ser Ala Ser Ala  
370 375 380

Ala Ala Ala Ala Ala Ala Ala Gly Pro Gly Gly Tyr Gly Pro Gly Gln  
385 390 395 400

Gln Gly Pro Gly Gly Tyr Ala Pro Gly Gln Gln Gly Pro Ser Gly Pro  
405 410 415

COPY

Gly Ser Ala Ser Ala Ala Ala Ala Ala Ala Ala Gly Pro Gly Gly  
420 425 430

Tyr Gly Pro Gly Gln Gln Gly Pro Gly Gly Tyr Ala Pro Gly Gln Gln  
435 440 445

Gly Pro Ser Gly Pro Gly Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala  
450 455 460

Gly Pro Gly Gly Tyr Gly Pro Ala Gln Gln Gly Pro Ser Gly Pro Gly  
465 470 475 480

Ile Ala Ala Ser Ala Ala Ser Ala Gly Pro Gly Gly Tyr Gly Pro Ala  
485 490 495

Gln Gln Gly Pro Ala Gly Tyr Gly Pro Gly Ser Ala Val Ala Ala Ser  
500 505 510

Ala Gly Ala Gly Ser Ala Gly Tyr Gly Pro Gly Ser Gln Ala Ser Ala  
515 520 525

Ala Ala Ser Arg Leu Ala Ser Pro Asp Ser Gly Ala Arg Val Ala Ser  
530 535 540

Ala Val Ser Asn Leu Val Ser Ser Gly Pro Thr Ser Ser Ala Ala Leu  
545 550 555 560

Ser Ser Val Ile Ser Asn Ala Val Ser Gln Ile Gly Ala Ser Asn Pro  
565 570 575

Gly Leu Ser Gly Cys Asp Val Leu Ile Gln Ala Leu Leu Glu Ile Val  
580 585 590

Ser Ala Cys Val Thr Ile Leu Ser Ser Ser Ser Ile Gly Gln Val Asn  
595 600 605

Tyr Gly Ala Ala Ser Gln Phe Ala Gln Val Val Gly Gln Ser Val Leu  
610 615 620

Ser Ala Phe  
625

<210> 3  
<211> 625  
<212> PRT

**COPY**

<213> Artificial sequence

<220>

<223> ADF-3 polypeptide

<400> 3

Gly Ser Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly  
1 5 10 15

Pro Gly Gln Gln Gly Pro Tyr Gly Pro Gly Ala Ser Ala Ala Ala Ala  
20 25 30

Ala Ala Gly Gly Tyr Gly Pro Gly Ser Gly Gln Gln Gly Pro Ser Gln  
35 40 45

Gln Gly Pro Gly Gln Gln Gly Pro Gly Gly Gln Gly Arg Tyr Gly Pro  
50 55 60

Gly Ala Ser Ala Ala Ala Ala Ala Gly Gly Tyr Gly Pro Gly Ser  
65 70 75 80

Gly Gln Gln Gly Pro Gly Gly Gln Gly Pro Tyr Gly Pro Gly Ser Ser  
85 90 95

Ala Ala Ala Ala Ala Ala Gly Gly Asn Gly Pro Gly Ser Gly Gln Gln  
100 105 110

Gly Ala Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Ala Ser Ala  
115 120 125

Ala Ala Ala Ala Ala Gly Gly Tyr Gly Pro Gly Ser Gly Gln Gln Gly  
130 135 140

Pro Gly Gln Gln Gly Pro Gly Gly Gln Gly Pro Tyr Gly Pro Gly Ala  
145 150 155 160

Ser Ala Ala Ala Ala Ala Gly Gly Tyr Gly Pro Gly Ser Gly Gln  
165 170 175

Gly Pro Gly Gln Gln Gly Pro Gly Gly Gln Gly Pro Tyr Gly Pro Gly  
180 185 190

Ala Ser Ala Ala Ala Ala Ala Gly Gly Tyr Gly Pro Gly Ser Gly  
195 200 205

Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gly  
210 215 220

**COPY**

Gln Gly Pro Tyr Gly Pro Gly Ala Ser Ala Ala Ala Ala Ala Gly  
225 230 235 240

Gly Tyr Gly Pro Gly Tyr Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro  
245 250 255

Gly Gly Gln Gly Pro Tyr Gly Pro Gly Ala Ser Ala Ala Ser Ala Ala  
260 265 270

Ser Gly Gly Tyr Gly Pro Gly Ser Gly Gln Gln Gly Pro Gly Gln Gln  
275 280 285

Gly Pro Gly Gly Gln Gly Pro Tyr Gly Pro Gly Ala Ser Ala Ala Ala  
290 295 300

Ala Ala Ala Gly Gly Tyr Gly Pro Gly Ser Gly Gln Gln Gly Pro Gly  
305 310 315 320

Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gly  
325 330 335

Gln Gly Pro Tyr Gly Pro Gly Ala Ser Ala Ala Ala Ala Ala Gly  
340 345 350

Gly Tyr Gly Pro Gly Ser Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro  
355 360 365

Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly  
370 375 380

Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln  
385 390 395 400

Gln Gly Pro Gly Gly Gln Gly Ala Tyr Gly Pro Gly Ala Ser Ala Ala  
405 410 415

Ala Gly Ala Ala Gly Gly Tyr Gly Pro Gly Ser Gly Gln Gln Gly Pro  
420 425 430

Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly  
435 440 445

Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln  
450 455 460

**COPY**

Gln Gly Pro Tyr Gly Pro Gly Ala Ser Ala Ala Ala Ala Gly  
465 470 475 480

Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gly  
485 490 495

Gln Gly Pro Tyr Gly Pro Gly Ala Ala Ser Ala Ala Val Ser Val Gly  
500 505 510

Gly Tyr Gly Pro Gly Ser Ser Ser Val Pro Val Ala Ser Ala Val Ala  
515 520 525

Ser Arg Leu Ser Ser Pro Ala Ala Ser Ser Arg Val Ser Ser Ala Val  
530 535 540

Ser Ser Leu Val Ser Ser Gly Pro Thr Lys His Ala Leu Leu Ser Asn  
545 550 555 560

Thr Ile Ser Ser Val Val Ser Gln Val Ser Ala Asn Pro Gly Leu Ser  
565 570 575

Gly Cys Asp Val Leu Val Gln Ala Leu Leu Glu Val Val Ser Ala Leu  
580 585 590

Val Ser Ile Leu Gly Ser Ser Ser Ile Gly Gln Ile Asn Tyr Gly Ala  
595 600 605

Ser Ala Gln Tyr Thr Gln Met Val Gly Gln Ser Val Ala Gln Ala Leu  
610 615 620

Ala  
625

<210> 4  
<211> 5  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 4

Ala Ala Ala Ala Ala  
1 5

<210> 5  
<211> 4

COPY

<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 5

Gly Ala Gly Ala  
1

<210> 6  
<211> 6  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 6

Gly Ala Gly Ala Gly Ala  
1 5

<210> 7  
<211> 8  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 7

Gly Ala Gly Ala Gly Ala Gly Ala  
1 5

<210> 8  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 8

Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala  
1 5 10

<210> 9  
<211> 12  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

COPY

<400> 9

Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala  
1 5 10

<210> 10

<211> 14

<212> PRT

<213> Artificial sequence

<220>

<223> Acceptable repetitive units of silk polypeptide

<400> 10

Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala  
1 5 10

<210> 11

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Acceptable repetitive units of silk polypeptide

<400> 11

Gly Gly Tyr Gly Gln Gly Tyr  
1 5

<210> 12

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Acceptable repetitive units of silk polypeptide

<400> 12

Ala Ala Ala Ala Ala Ala Ala Ala  
1 5

<210> 13

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Acceptable repetitive units of silk polypeptide

<400> 13

Gly Gly Ala Gly Gln Gly Gly Tyr  
1 5



**COPY**

<210> 14  
<211> 17  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 14

Gly Gly Gln Gly Gly Gln Gly Gly Tyr Gly Gly Leu Gly Ser Gln Gly  
1                      5                      10                      15

Ala

<210> 15  
<211> 8  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 15

Ala Ser Ala Ala Ala Ala Ala Ala  
1                      5

<210> 16  
<211> 5  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 16

Gly Pro Gly Gln Gln  
1                      5

<210> 17  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 17

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln  
1                      5                      10

COPY

<210> 18  
<211> 15  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 18

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln  
1                      5                      10                      15

<210> 19  
<211> 20  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 19

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly  
1                      5                      10                      15

Pro Gly Gln Gln  
                    20

<210> 20  
<211> 25  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 20

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly  
1                      5                      10                      15

Pro Gly Gln Gln Gly Pro Gly Gln Gln  
                    20                      25

<210> 21  
<211> 30  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 21

COPY

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly  
1 5 10 15

Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln  
20 25 30

<210> 22  
<211> 35  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 22

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly  
1 5 10 15

Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro  
20 25 30

Gly Gln Gln  
35

<210> 23  
<211> 40  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 23

Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly  
1 5 10 15

Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro  
20 25 30

Gly Gln Gln Gly Pro Gly Gln Gln  
35 40

<210> 24  
<211> 12  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 24

COPY

Gly Pro Gly Gly Gln Gly Gly Pro Tyr Gly Pro Gly  
1 5 10

<210> 25  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 25

Ser Ser Ala Ala Ala Ala Ala Ala Ala Ala  
1 5 10

<210> 26  
<211> 8  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 26

Gly Pro Gly Ser Gln Gly Pro Ser  
1 5

<210> 27  
<211> 5  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Acceptable repetitive units of silk polypeptide

<400> 27

Gly Pro Gly Gly Tyr  
1 5

<210> 28  
<211> 34  
<212> PRT  
<213> Nephila spidroin

<400> 28

Ala Gly Gln Gly Gly Tyr Gly Gly Leu Gly Ser Gln Gly Ala Gly Arg  
1 5 10 15

Gly Gly Leu Gly Gly Gln Gly Ala Gly Ala Ala Ala Ala Ala Ala  
20 25 30

COPY

Gly Gly

<210> 29  
<211> 47  
<212> PRT  
<213> Nephila spidroin

<400> 29

Cys Pro Gly Gly Tyr Gly Pro Gly Gln Gln Cys Pro Gly Gly Tyr Gly  
1 5 10 15

Pro Gly Gln Gln Cys Pro Gly Gly Tyr Gly Pro Gly Gln Gln Gly Pro  
20 25 30

Ser Gly Pro Gly Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala  
35 40 45

<210> 30  
<211> 30  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 30  
cgtacgaagc ttatgcacga gccggatctg

30

<210> 31  
<211> 33  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 31  
attaactcga gcagcaaggg cttgagctac aga

33

<210> 32  
<211> 15  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Linker sequence

<400> 32  
tcgagcttga tggtt

15

<210> 33

COPY

<211> 157  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Linker sequence

<400> 33  
caggatctgg acaacaagga cccggacaac aaggacccgg acaacaagga cccggacaac 60  
aaggaccata tggacccggt gcatccgccg cagcagcagc cgctggaggt tatggaccgg 120  
gatctggaca acaaggaccc agccaacaag gacctgg 157

<210> 34  
<211> 18  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Linker sequence

<400> 34  
ctaggttaag tttaaacg 18

<210> 35  
<211> 59  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 35  
caggttccac tgggtgacgcg gcccaagggg cccaaggggc aggtgcagca gcagcagca 59

<210> 36  
<211> 25  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 36  
gaaccagag cagcagtacc catag 25

<210> 37  
<211> 16  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Linker sequence

<400> 37  
agcgggcccg ctcttc 16

**COPY**

<210> 38  
<211> 13  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 38  
gaagagcggg ccc

13

<210> 39  
<211> 17  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Linker sequence

<400> 39  
gggctgctgc tgcggcc

17

<210> 40  
<211> 17  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 40  
gggctgctgc tgcggcc

17

<210> 41  
<211> 10  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Linker sequence

<400> 41  
tgaaatttcg

10

<210> 42  
<211> 18  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Primer

<400> 42  
aattcgaaat ttcattgca

18

COPY

<210> 43  
<211> 6  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Crystal forming Gly-rich amorphous blocks of spider silk protein

<400> 43

Gly Gly Tyr Gly Pro Gly  
1 5

<210> 44  
<211> 16  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Anti-MaSpII sequence

<400> 44

Gly Leu Gly Ser Gln Gly Ala Gly Arg Gly Gly Gln Gly Ala Gly Ala  
1 5 10 15

<210> 45  
<211> 16  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Anti-ADF-3 sequence

<400> 45

Ala Arg Ala Gly Ser Gly Gln Gln Gly Pro Gly Gln Gln Gly Pro Gly  
1 5 10 15

<210> 46  
<211> 360  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Translation of ADF-1

<400> 46

His Glu Ser Ser Tyr Ala Ala Ala Met Ala Ala Ser Thr Arg Asn Ser  
1 5 10 15

Asp Phe Ile Arg Asn Met Ser Tyr Gln Met Gly Arg Leu Leu Ser Asn  
20 25 30



COPY

Ala Gly Ala Ile Thr Glu Ser Thr Ala Ser Ser Ala Ala Ser Ser Ala  
35 40 45

Ser Ser Thr Val Thr Glu Ser Ile Arg Thr Tyr Gly Pro Ala Ala Ile  
50 55 60

Phe Ser Gly Ala Gly Ala Gly Ala Gly Val Gly Val Gly Gly Ala Gly  
65 70 75 80

Gly Tyr Gly Gln Gly Tyr Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala  
85 90 95

Gly Ala Gly Ala Gly Gly Ala Gly Gly Tyr Gly Gln Gly Tyr Gly Ala  
100 105 110

Gly Ala Ala Ala Ala Ala Gly Ala Gly Ala Gly Ala Ala Gly Gly Tyr  
115 120 125

Gly Gly Gly Ser Gly Ala Gly Ala Gly Gly Ala Gly Gly Tyr Gly Gln  
130 135 140

Gly Tyr Gly Ala Gly Ser Gly Ala Gly Ala Gly Ala Ala Ala Ala Ala  
145 150 155 160

Gly Ala Ser Ala Gly Ala Ala Gly Gly Tyr Gly Gly Gly Ala Gly Val  
165 170 175

Gly Ala Gly Ala Gly Ala Gly Ala Ala Gly Gly Tyr Gly Gln Ser Tyr  
180 185 190

Gly Ser Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala Ala Ala Ala Ala  
195 200 205

Gly Ala Gly Ala Arg Ala Ala Gly Gly Tyr Gly Gly Gly Tyr Gly Ala  
210 215 220

Gly Ala Gly Ala Gly Ala Gly Ala Ala Ala Ser Ala Gly Ala Ser Gly  
225 230 235 240

Gly Tyr Gly Gly Gly Tyr Gly Gly Gly Ala Gly Ala Gly Ala Val Ala  
245 250 255

Gly Ala Ser Ala Gly Ser Tyr Gly Gly Ala Val Asn Arg Leu Ser Ser  
260 265 270

Ala Gly Ala Ala Ser Arg Val Ser Ser Asn Val Ala Ala Ile Ala Ser

COPY

275

280

285

Ala Gly Ala Ala Ala Leu Pro Asn Val Ile Ser Asn Ile Tyr Ser Gly  
290 295 300

Val Leu Ser Ser Gly Val Ser Ser Ser Glu Ala Leu Ile Gln Ala Leu  
305 310 315 320

Leu Glu Val Ile Ser Ala Leu Ile His Val Leu Gly Ser Ala Ser Ile  
325 330 335

Gly Asn Val Ser Ser Val Gly Val Asn Ser Ala Leu Asn Ala Val Gln  
340 345 350

Asn Ala Val Gly Ala Tyr Ala Gly  
355 360

<210> 47  
<211> 294  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Translation of ADF-2

<400> 47

Gly Ser Gln Gly Ala Gly Gly Ala Gly Gln Gly Gly Tyr Gly Ala Gly  
1 5 10 15

Gly Gly Gly Ala Ala Ala Ala Ala Ala Ala Val Gly Ala Gly Gly  
20 25 30

Gly Gly Gln Gly Gly Leu Gly Ser Gly Gly Ala Gly Gln Gly Tyr Gly  
35 40 45

Ala Gly Leu Gly Gly Gln Gly Gly Ala Ser Ala Ala Ala Ala Ala  
50 55 60

Gly Gly Gln Gly Gly Gln Gly Gly Gln Gly Tyr Gly Gly Leu Gly  
65 70 75 80

Ser Gln Gly Ala Gly Gly Ala Gly Gln Leu Gly Tyr Gly Ala Gly Gln  
85 90 95

Glu Ser Ala Ala Ala Ala Ala Ala Ala Gly Gly Ala Gly Gly Gly  
100 105 110

COPY

Gly Gln Gly Gly Leu Gly Ala Gly Gly Ala Gly Gln Gly Tyr Gly Ala  
115 120 125

Ala Gly Leu Gly Gly Gln Gly Gly Ala Gly Gln Gly Gly Gly Ser Gly  
130 135 140

Ala Ala Ala Ala Ala Gly Gly Gln Gly Gly Gln Gly Gly Tyr Gly Gly  
145 150 155 160

Leu Gly Pro Gln Gly Ala Gly Gly Ala Gly Gln Gly Gly Tyr Gly Gly  
165 170 175

Gly Ser Leu Gln Tyr Gly Gly Gln Gly Gln Ala Gln Ala Ala Ala Ala  
180 185 190

Ser Ala Ala Ala Ser Arg Leu Ser Ser Pro Ser Ala Ala Ala Arg Val  
195 200 205

Ser Ser Ala Val Ser Leu Val Ser Asn Gly Gly Pro Thr Ser Pro Ala  
210 215 220

Ala Leu Ser Ser Ser Ile Ser Asn Val Val Ser Gln Ile Ser Ala Ser  
225 230 235 240

Asn Pro Gly Leu Ser Gly Cys Asp Ile Leu Val Gln Ala Leu Leu Glu  
245 250 255

Ile Ile Ser Ala Leu Val His Ile Leu Gly Ser Ala Asn Ile Gly Pro  
260 265 270

Val Asn Ser Ser Ser Ala Gly Gln Ser Ala Ser Ile Val Gly Gln Ser  
275 280 285

Val Tyr Arg Ala Leu Ser  
290

<210> 48  
<211> 410  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Translation of ADF-4

<400> 48

Ala Gly Ser Ser Ala Ala Ala Ala Ala Ala Ser Gly Ser Gly Gly  
1 5 10 15

COPY

Tyr Gly Pro Glu Asn Gln Gly Pro Ser Gly Pro Val Ala Tyr Gly Pro  
20 25 30

Gly Gly Pro Val Ser Ser Ala Ala Ala Ala Ala Ala Gly Ser Gly  
35 40 45

Pro Gly Gly Tyr Gly Pro Glu Asn Gln Gly Pro Ser Gly Pro Gly Gly  
50 55 60

Tyr Gly Pro Gly Gly Ser Gly Ser Ser Ala Ala Ala Ala Ala Ala Ala  
65 70 75 80

Ala Ser Gly Pro Gly Gly Tyr Gly Pro Gly Ser Gln Gly Pro Ser Gly  
85 90 95

Pro Gly Gly Ser Gly Gly Tyr Gly Pro Gly Ser Gln Gly Ala Ser Gly  
100 105 110

Pro Gly Gly Pro Gly Ala Ser Ala Ala Ala Ala Ala Ala Ala Ala  
115 120 125

Ala Ser Gly Pro Gly Gly Tyr Gly Pro Gly Ser Gln Gly Pro Ser Gly  
130 135 140

Pro Gly Ala Tyr Gly Pro Gly Gly Pro Gly Ser Ser Ala Ala Ala Ala  
145 150 155 160

Ala Ala Ala Ala Ser Gly Pro Gly Gly Tyr Gly Pro Gly Ser Gln Gly  
165 170 175

Pro Ser Gly Pro Gly Val Tyr Gly Pro Gly Gly Pro Gly Ser Ser Ala  
180 185 190

Ala Ala Ala Ala Ala Ala Gly Ser Gly Pro Gly Gly Tyr Gly Pro Glu  
195 200 205

Asn Gln Gly Pro Ser Gly Pro Gly Gly Tyr Gly Pro Gly Gly Ser Gly  
210 215 220

Ser Ser Ala Ala Ala Ala Ala Ala Ala Ala Ser Gly Pro Gly Gly Tyr  
225 230 235 240

Gly Pro Gly Ser Gln Gly Pro Ser Gly Pro Gly Gly Ser Gly Gly Tyr  
245 250 255

COPY

Gly Pro Gly Ser Gln Gly Gly Ser Gly Pro Gly Ala Ser Ala Ala Ala  
260 265 270

Ala Ala Ala Ala Ala Ser Gly Pro Gly Gly Tyr Gly Pro Gly Ser Gln  
275 280 285

Gly Pro Ser Gly Pro Gly Tyr Gln Gly Pro Ser Gly Pro Gly Ala Tyr  
290 295 300

Gly Pro Ser Pro Ser Ala Ser Ala Ser Val Ala Ala Ser Val Tyr Leu  
305 310 315 320

Arg Leu Gln Pro Arg Leu Glu Val Ser Ser Ala Val Ser Ser Leu Val  
325 330 335

Ser Ser Gly Pro Thr Asn Gly Ala Ala Val Ser Gly Ala Leu Asn Ser  
340 345 350

Leu Val Ser Gln Ile Ser Ala Ser Asn Pro Gly Leu Ser Gly Cys Asp  
355 360 365

Ala Leu Val Gln Ala Leu Leu Glu Leu Val Ser Ala Leu Val Ala Ile  
370 375 380

Leu Ser Ser Ala Ser Ile Gly Gln Val Asn Val Ser Ser Val Ser Gln  
385 390 395 400

Ser Thr Gln Met Ile Ser Gln Ala Leu Ser  
405 410

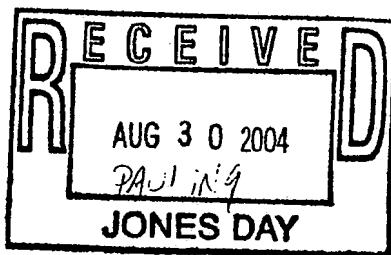


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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/501,183	Costas N Karatzas	9529-008-999

20583  
JONES DAY  
222 EAST 41ST ST  
NEW YORK, NY 10017



INTERNATIONAL APPLICATION NO.	
PCT/IB03/00346	
LA. FILING DATE	PRIORITY DATE
01/13/2003	01/11/2002

CONFIRMATION NO. 6046  
371 FORMALITIES LETTER  
\*OC000000013632304\*

Date Mailed: 08/25/2004

## NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Indication of Small Entity Status
- Copy of the International Application filed on 07/09/2004
- Copy of the International Search Report filed on 07/09/2004
- Preliminary Amendments filed on 07/09/2004
- Oath or Declaration filed on 07/09/2004
- Request for Immediate Examination filed on 07/09/2004
- U.S. Basic National Fees filed on 07/09/2004

**MENLO PARK DOCKET**  
DATE: **AUG 31 2004**  
☒ SENT TO ATTORNEY  
☒ SENT TO NY DOCKET

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date. The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:
  - is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.

The following items **MUST** be furnished within the period set forth below:

- The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 CFR 1.821-1.825 for the following reason(s):
  - This application does not contain a "Sequence Listing" as a separate part of the disclosure on paper copy or compact disc, as required by 37 CFR 1.821(c) and PCT Rule 5.2(a).
  - A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e) and PCT Rule 13ter.1(a)(ii).
  - APPLICANT MUST PROVIDE:

- An initial or substitute computer readable form (CRF) of the "Sequence Listing."
  - An initial or substitute paper copy or compact disc of the "Sequence Listing," as well as an amendment directing its entry into the specification.
- For questions regarding compliance to 37 CFR 1.821-1.825 requirements, please contact:
    - For Rules Interpretation, call (703) 308-4216
    - To Purchase PatentIn Software, call (703) 306-2600
    - For PatentIn Software Program Help, call (703) 306-4119 or e-mail at patin21help@uspto.gov or patin3help@uspto.gov

**ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.**

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

PAULETTE R KIDWELL

Telephone: (703) 305-3656

**PART 1 - ATTORNEY/APPLICANT COPY**

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/501,183	PCT/IB03/00346	9529-008-999

FORM PCT/DO/EO/905 (371 Formalities Notice)